$$f'(x)=\frac{\frac{1}{2\sqrt{x}}(\sqrt{x}+2)-\frac{1}{2\sqrt{x}}(\sqrt{x}-2)}{(\sqrt{x}+2)^2}$$

$$f'(x)=\frac{2}{\sqrt{x}.(\sqrt{x}+2)^2}$$

EXERCICE№6

$f(x)=x^3-3x$ $\quad g(x)=x-\frac{4}{x}$

1) $M(x,y)\in(\mathcal{C})\cap(\mathcal{C}')\Leftrightarrow\begin{cases}y=x^3-3x\\y=x-\frac{4}{x}\end{cases}\Leftrightarrow\begin{cases}x^3-3x=x-\frac{4}{x}\\y=x^3-3x\end{cases}$

$\Leftrightarrow\begin{cases}x^3-4x+\frac{4}{x}=0\\y=x^3-3x\end{cases}\Leftrightarrow\begin{cases}x^4-4x^2+4=0\\y=x^3-3x\end{cases}\Leftrightarrow\begin{cases}(x^2-2)^2=0\\y=x^3-3x\end{cases}$

$\Leftrightarrow\begin{cases}x^2=2\\y=x^3-3x\end{cases}\Leftrightarrow\begin{cases}x=-\sqrt{2}\\y=\sqrt{2}\end{cases}$ ou $\begin{cases}x=\sqrt{2}\\y=-\sqrt{2}\end{cases}$

D'où : $(\mathcal{C})\cap(\mathcal{C}')=\{A(-\sqrt{2},\sqrt{2}),B(\sqrt{2},-\sqrt{2})\}$

2) * $f'(x)=3x^2-3$

$g'(x)=1+\frac{4}{x^2}$

* $f'(-\sqrt{2})=g'(-\sqrt{2})=3$

d'où : $(\mathcal{C})$ et $(\mathcal{C}')$ admettent la même tangente (T_A) en A

$(T_A):y=3(x+\sqrt{2})+\sqrt{2}$

$(T_A):y=3x+4\sqrt{2}$

* $f'(\sqrt{2})=g'(\sqrt{2})=3$

$(T_B):y=3(x-\sqrt{2})-\sqrt{2}$

$(T_B):y=3x-4\sqrt{2}$

EXERCICE№7

1) <u>continuité en (-1)</u>

$f(-1)=0$

* $\lim\limits_{x\to(-1)^-}f(x)=\lim\limits_{x\to(-1)^-}\sqrt{-x-1}=0=f(-1)$

* $\lim\limits_{x\to(-1)^+}f(x)=\lim\limits_{x\to(-1)^+}(x^2-1)=0=f(-1)$

Qarray.tn -Aqra Blech- Qarray.tn